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EXAMINER	
EL CHANTI, HUSSEIN A	
ART UNIT	**PAPER NUMBER**
2157	

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/557,736	LIAO, HENG	
	Examiner	Art Unit	
	Hussein A El-chanti	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Dec. 23, 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. This action is responsive to communication received on Dec. 29, 2003. Claim 6 has been amended. Claims 1-30 are pending examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Riddle et al., U.S. Patent No. 6,457,051 (referred to hereafter as Riddle).

Riddle teaches the invention as claimed including a system for protocol processing in a computer network (see abstract).

As to claim 1, Riddle teaches a method for identifying protocol encapsulation in received network data comprising providing a grammar and parsing incoming network data using said grammar, said network data being organized into data packets (see col. 13 lines 57-67 and claim 1, where the grammar is the rules of matching the data packets to a traffic specification).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Del Monte, U.S. Patent No. 5,704,060.

As to claim 2, Riddle teaches a method for identifying protocol encapsulation in received network data comprising providing a grammar and parsing incoming network data using said grammar, said network data being organized into data packets (see the rejection of claim 1) wherein said grammar is a grammar graph (see claim 3, tree type node being the grammar graph). Riddle doesn't teach the method of claim 1 wherein the method further including providing a deterministic finite automaton (DFA) representing said grammar graph.

However, Del Monte teaches providing a deterministic finite automaton (DFA) representing grammar graph (see col. 14lines 21-31).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of including a DFA representing said grammar graph as in Del Monte. One would be motivated to include a DFA in Riddle because doing so would allow the network to map an ordered sequence of input events into a corresponding sequence according to the control section of the data where the next state is uniquely determined by a single input event.

4. Claims 3, 4, 6-8 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Tang, U.S. Patent No. 6,378,126.

As to claim 3, Riddle teaches a method for identifying protocol encapsulation in received network data comprising providing a grammar and parsing incoming network data using said grammar, said network data being organized into data packets (see the rejection of claim 1.

Riddle doesn't teach the method of claim 1 further including scanning said incoming network data using lexical token scanning to produce plural lexical tokens.

However Tang teaches scanning said incoming network data using lexical token scanning to produce plural lexical tokens and parsing said lexical tokens (see abstract, statements in a program are lexically scanned and parsed into a parse tree).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of lexically scanning incoming data packets and parsing the lexical tokens as in Tang. One would be motivated to include lexical scanning of packets and parsing lexical tokens in Riddle because doing so would allow the processor to read the specific lexical token relating to the control protocol layer that the instruction belongs to rather than reading the whole instruction or packet and thus creating faster communications medium and faster data routing.

As to claim 4, Tang also teaches lexical scanning includes providing a set of regular expressions (see abstract).

As to claim 6, Riddle teaches a method for processing data packets comprising:

providing a grammar (see claim 1, where the grammar is the rules of matching the data packets to a traffic specification).;

receiving plural data packets, each having a length not necessarily equal to one another (see claim 1); and

parsing data to produce one or more identified protocols, and processing said data packet based on said identified protocols (see fig. 4A and its corresponding illustration).

Riddle doesn't teach the limitation "lexically scanning data packet to produce lexical tokens". However Tang teaches lexically scanning data packet to produce lexical tokens (see abstract, statements in a program are lexically scanned and parsed into a parse tree).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of lexically scanning incoming data packets and parsing the lexical tokens as in Tang. One would be motivated to include lexical scanning of packets and parsing lexical tokens in Riddle because doing so would allow the processor to read the specific lexical token relating to the control protocol layer that the instruction belongs to rather than reading the whole instruction or packet and thus creating faster communications medium and faster data routing.

As to claim 7, Riddle teaches the method of claim 6 further including compiling said grammar to produce grammar graph (see claim 3).

As to claim 8, Riddle teaches the method of claim 7 wherein said scanning includes providing regular expressions for identifying said lexical tokens (see Table. 3 in col. 15).

As to claim 27, Riddle teaches a network packet classifier comprising:

means for receiving an incoming network packet (see fig. 1 and its corresponding illustration); and

means for identifying protocol structure in said network packet including means for scanning to match patterns in its constituent data against plural regular expressions and means for parsing through said lexical tokens using a grammar (see claim 1 and Table. 3 included in col. 15).

Riddle doesn't teach the method of claim 1 further including scanning said incoming network data using lexical token scanning to produce plural lexical tokens.

However Tang teaches scanning said incoming network data using lexical token scanning to produce plural lexical tokens and parsing said lexical tokens (see abstract, statements in a program are lexically scanned and parsed into a parse tree).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of lexically scanning incoming data packets and parsing the lexical tokens as in Tang. One would be motivated to include lexical scanning of packets and parsing lexical tokens in Riddle because doing so would allow the processor to read the specific lexical token relating to the control protocol layer that the instruction belongs to rather than reading the whole instruction or packet and thus creating faster communications medium and faster data routing.

5. Claims 5, 9, 10, 18, 22, 23, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Tang in further view of Del Monte.

As to claims 5, 9 and 10, Riddle and Tang do not teach the limitation "providing a DFA including a representation of said lexical tokens and said grammar".

However, Del Monte teaches providing a deterministic finite automaton (DFA) representing grammar (see col. 14 lines 21-31).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of including a DFA as in Del Monte including a representation of said lexical tokens as in Tang. One would be motivated to include a DFA including recognizing the lexical tokens using the DFA in Riddle because doing so would allow the DFA to determine the protocol in which the packet is to be implemented and map an ordered sequence of input events into a corresponding sequence according to the control section of the data where the next state is uniquely determined by a single input event.

As to claim 18, Riddle teaches a network data packet classifier comprising an input port for receiving network data packets comprising a stream of data (see fig. 1 and abstract), a grammar graph and plural regular expressions (see col. 14 line 21-31 and claim 1), identify a protocol structure in a received network data packet wherein processing of said network data depends on said protocol structure (see fig. 4A and its corresponding illustration.

Riddle doesn't teach the limitation "representing said grammar graph and decompression logic producing lexical tokens".

However Tang teaches scanning said incoming network data using lexical token scanning to produce plural lexical tokens and parsing said lexical tokens (see abstract, statements in a program are lexically scanned and parsed into a parse tree) and Del Monte teaches providing a deterministic finite automaton (DFA) representing grammar

graph (see col. 14lines 21-31) and teaches decompression logic configured to scan data with said DFA (see col. 1).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of decompression logic configured to scan data with DFA as in Del Monte and parsing lexical tokens as in Tang. One would be motivated modify Riddle by using a DFA and a decompression logic and parsing lexical tokens because doing so would allow the network to map an ordered sequence of input events into a corresponding sequence by scanning the lexical tokens according to the control section of the data where the next state is uniquely determined by a single input event.

As to claim 22, Riddle teaches network data vary from one packet to another (see abstract and claim 1).

As to claim 23, Del Monte teaches DFA is in compressed form (see col. 2 lines 42-56

As to claim 28, Del Monte teaches means for scanning includes a memory component configured with data to represent a deterministic finite automaton (DFA) (see fig. 1 and its corresponding illustration and col. 14 lines 21-31)

As to claim 29, Riddle teaches memory component is configured to include said grammar (see fig. 1A and its corresponding illustration).

6. Claims 15 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Tang in further view of Boucher et al., U.S. Patent No. 6,226,680 (referred to hereafter as Boucher).

Riddle and Tang do not teach the limitation "arithmetic logic unit configured to perform operations in accordance with arithmetic specifier". However Boucher teaches method of protocol processing including an arithmetic logic unit configured to perform operations in accordance with arithmetic specifiers (see fig. 14 and its corresponding illustration).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Riddle and Tang in view of using an arithmetic and logic unit to perform operations as in Boucher. One would be motivated to include an arithmetic logic unit in Riddle because doing so would allow faster classification of data packets since the processing and determination of the data packets properties are done by the arithmetic logic unit rather than being done by the network processor that might have an overload due to the traffic coming in and out of the network.

7. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Tang, in view of Del Monte further in view of Moreno.

As to claim 16, Riddle and Tang teach a method for classifying received network data comprising scanning incoming data using lexical token scanning wherein said network data is treated as a stream of input bytes, said network data being organized into data packets, said scanning resulting in the identification of a data packet belonging to one of a plurality of classes.

Riddle and Tang do not teach the limitation "some of said states further include a skip instruction". However Moreno teaches a skip instruction (see claims 7 and 8).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of identifying a skip operation and in response thereto skipping over one or more subsequent input bytes as in Moreno. One would be motivated to modify Riddle in view of identifying a skip operation and in response thereto skipping over one or more subsequent input bytes because doing so would allow the processor to detect an error in the stream of incoming data and skip to the next data stream by detecting address of the beginning of the next incoming data packet.

As to claim 17, Riddle teaches regular expressions include data storage operations (see col. 13 lines 48-56).

8. Claims 19, 20, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Tang in view of Del Monte, further in view of Boucher.

Riddle, Tang and Del Monte do not teach the limitation "arithmetic logic unit configured to perform operations in accordance with arithmetic specifier". However Boucher teaches method of protocol processing including an arithmetic logic unit configured to perform operations in accordance with arithmetic specifiers (see fig. 14 and its corresponding illustration).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Riddle and Tang in view of using an arithmetic and logic unit to perform operations as in Boucher. One would be motivated to include an arithmetic logic unit in Riddle because doing so would allow faster classification of data packets since the processing and determination of the data

packets properties are done by the arithmetic logic unit rather than being done by the network processor that might have an overload due to the traffic coming in and out of the network.

As to claim 20, Boucher teaches at least one register operatively coupled to said arithmetic logic unit where arithmetic logic unit further configured to store data into said register in response to save instruction (see fig. 14 and its corresponding illustration).

As to claim 24, Boucher teaches a base memory, next state memory and base memory configured to contain address locations of said next state memory (see fig. 15A-C).

As to claim 25, Boucher teaches memories are random access memories (see fig. 15A).

As to claim 26, Boucher teaches said memories are read-only memories (see fig. 13 and its corresponding illustration).

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Tang, in view of Del Monte in view of Boucher further in view of Moreno.

Riddle does not teach the limitation "some of said states further include a skip instruction". However Moreno teaches a skip instruction to skip over an amount of data (see claims 7 and 8).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of identifying a skip operation and in response thereto skipping over one or more subsequent input bytes as in Moreno. One would be motivated to modify Riddle in view of identifying a skip operation and in response

thereto skipping over one or more subsequent input bytes because doing so would allow the processor to detect an error in the stream of incoming data and skip to the next data stream by detecting address of the beginning of the next incoming data packet.

10. Claims 11-14 do not add any new limitations above claims 1-13 and therefore are rejected for similar reasons.

11. Applicant's arguments filed have been fully considered but they are not persuasive.

In the remarks, the applicant argues in substance that; A) Riddle does not define a grammar B) Riddle does not suggest the flow can be viewed as language C) there is no suggestion to incorporate Del Monte into Riddle D) Riddle and Tang do not suggest subjecting network data to lexical scanning E) Riddle does not allow for detecting "the beginning of the next incoming data packet" F) Riddle does not teach a grammar graph.

In response to A) Riddle classifies data packets according to a set of rules that define the grammar for the classification of data (see col. 13 lines 57-col. 14 lines 9) for example Riddle checks the protocol type and the port number of the incoming data packets and accordingly classifies the data packets (see col. 14 lines 50-col. 15 lines 20) and therefore Riddle teaches the claimed limitation "providing a grammar".

In response to B) Applicant is arguing Riddle does not suggest the flow can be viewed as language. This limitation is not found in the claims. Claimed subject matter net the specification is the measure of the invention. Disclosure contained in the specification cannot be read into the claims.

In response to C) In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the IP packet is parsed to identify attributes such as protocol type and the port number and classify data packets according to these attributes (see col. 14 lines 50-col. 15 lines 20).

In response to D) Riddle parses the data packets and produces tokens such as the protocol type and the port number and classify data packets according to these attributes (see col. 14 lines 50-col. 15 lines 20).

In response to E) Riddle uses C language to classify data packets (see col. 5 lines 60-67) where one of the ordinary skill in the art would know how to implement skip and branch functions using C language.

In response to F) Riddle teaches a classification tree including a method of identifying new classes, creating new classes when a threshold and classifying data which reads on the claimed limitation "grammar graph" (see col. 14 lines 15-56).

12. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein A El-chanti whose telephone number is (703)305-4652. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (703)308-7562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Hussein El-chanti

March 18, 2004

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